

PATENT SPECIFICATION



Convention Date (Germany): Dec. 9, 1930.

389,570

Application Date (in United Kingdom): Nov. 28, 1931. No. 32,997/31.

Complete Accepted: March 23, 1933.

COMPLETE SPECIFICATION.

Improvements in Magneto-electric Ignition Apparatus suitable for Internal Combustion Engines.

We, ROBERT BOSCH AKTIENGESELLSCHAFT, a German Company, of 4, Militärstrasse, Stuttgart, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The invention relates to magneto-electric ignition apparatus suitable for use with internal combustion engines and of the type having a rotating magnet and a stationary armature. In order to render the effect of armature reaction negligible to the magnet, it is already known to make the pole shoes extend so far round the armature that they almost touch each other and so form a magnetic shunt for the path of the lines of force through the armature. In the case of stationary armatures built up of stamped metal sheets for ignition apparatus having a rotary magnet, the long extensions of the pole shoes usually entail a large waste of sheet metal. This is avoided according to the invention by providing a bridge of magnetic material arranged between the pole pieces so as to be in magnetic parallel with the core carrying the armature winding.

A magneto is known having a three shanked armature core with a coil on the middle core and an iron ring running parallel to a ring magnet the ends of which iron ring are connected to the outer shanks of the armature core. The object of the iron ring is to short circuit magnetically the ring magnet in all positions in which it does not excite the coil. The iron ring does not however form a magnetic shunt to the shank of the armature carrying the armature winding but lies in magnetic parallel only with the outer shanks of the armature core.

An electrical dynamo is also known in which the armature windings are mounted on short projecting cores standing up axially from an annular core, whilst the field magnets are bar shaped and extend axially of a yoke towards the ends of the armature cores and in which a metal sleeve extends between the cores of the

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armature winding and acts as a magnetic shunt to the field magnet; the sleeve being too far from the cores of the armature to have any appreciable effects thereon.

An example of construction of the invention is illustrated in the drawings in which:—

Figure 1 is a sectional view of a magneto ignition apparatus.

Figure 2 a section on the line A—A of Figure 1.

In the drawings, *a* is the rotating permanent magnet and *b* are its pole shoes. The stationary armature consists of two pole-pieces *d*, provided with pole shoes *c*, which in known manner are incast in the casing *e* of the ignition apparatus. The ends of the pole-pieces projecting from the casing are bridged by the core *f*, which carries the coil *g*. In the free space between the rotor *a* and the coil *g* a magnetic shunt *i*, consisting of sheet metal strips, is incast with the inner walls *h* of the casing which embrace the armature pole-pieces *d*, so that its ends *k* are spaced a small distance away from the pole-pieces *d*, which space is occupied by the non-magnetic material of the casing. The amount of this spacing will determine the action of the shunt.

The bridge *i* may also be arranged on one or both sides of the rotor.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A magneto-electric ignition apparatus having a stationary armature and a rotating permanent magnet, characterised by the feature that a bridge consisting of magnetic material is arranged between the armature pole pieces so as to be in magnetic parallel with the core carrying the armature winding.

2. A magneto-electric ignition apparatus as claimed in claim 1, in which the bridge is composed of strips of sheet metal.

3. A magneto-electric ignition apparatus as claimed in claims 1 and 2, in

which the bridge, together with the armature pole-pieces are incast in the casing of the magneto.

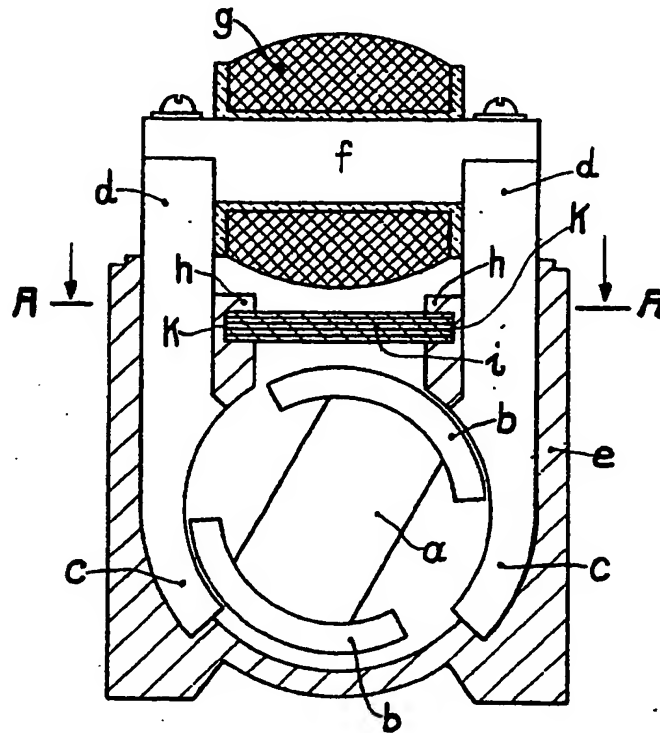
4. A magneto-electric machine having
5 a magnetic shunt constructed substantially as described with reference to the accompanying drawings.

Dated this 27th day of November, 1931.

W. P. THOMPSON & Co.,
12, Church Street, Liverpool,
Chartered & Registered Patent Agents.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1933.

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Fig. 1**Fig. 2**